

§ 563.6

Z-direction means in the direction of the vehicle's Z-axis, which is perpendicular to the X- and Y-axes. The Z-direction is positive in a downward direction.

[73 FR 2180, Jan. 14, 2008]

§ 563.6 Requirements for vehicles.

Each vehicle equipped with an EDR must meet the requirements specified in § 563.7 for data elements, § 563.8 for data format, § 563.9 for data capture, § 563.10 for crash test performance and survivability, and § 563.11 for information in owner's manual.

§ 563.7 Data elements.

(a) *Data elements required for all vehicles.* Each vehicle equipped with an EDR must record all of the data elements listed in Table I, during the interval/time and at the sample rate specified in that table.

TABLE I—DATA ELEMENTS REQUIRED FOR ALL VEHICLES EQUIPPED WITH AN EDR

Data element	Recording interval/time ¹ (relative to time zero)	Data sample rate (samples per second)
Delta-V, longitudinal	0 to 250 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	100
Maximum delta-V, longitudinal.	0 to 300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	N/A
Time, maximum delta-V	0 to 300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	N/A

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TABLE I—DATA ELEMENTS REQUIRED FOR ALL VEHICLES EQUIPPED WITH AN EDR—Continued

Data element	Recording interval/time ¹ (relative to time zero)	Data sample rate (samples per second)
Speed, vehicle indicated	–5.0 to 0 sec	2
Engine throttle, % full (or accelerator pedal, % full).	–5.0 to 0 sec	2
Service brake, on/off	–5.0 to 0 sec	2
Ignition cycle, crash	–1.0 sec	N/A
Ignition cycle, download	At time of download ³ .	N/A
Safety belt status, driver	–1.0 sec	N/A
Frontal air bag warning lamp, on/off ² .	–1.0 sec	N/A
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, driver.	Event	N/A
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, right front passenger.	Event	N/A
Multi-event, number of events (1, 2).	Event	N/A
Time from event 1 to 2	As needed	N/A
Complete file recorded (yes, no).	Following other data.	N/A

¹Pre-crash data and crash data are asynchronous. The sample time accuracy requirement for pre-crash time is –0.1 to 1.0 sec (e.g., T = –1 would need to occur between –1.1 and 0 seconds).

²The frontal air bag warning lamp is the readiness indicator specified in S4.5.2 of FMVSS No. 208.

³The ignition cycle at the time of download is not required to be recorded at the time of the crash, but shall be reported during the download process.

(b) *Data elements required for vehicles under specified conditions.* Each vehicle equipped with an EDR must record each of the data elements listed in column 1 of Table II for which the vehicle meets the condition specified in column 2 of that table, during the interval/time and at the sample rate specified in that table.

TABLE II—DATA ELEMENTS REQUIRED FOR VEHICLES UNDER SPECIFIED MINIMUM CONDITIONS

Data element name	Condition for requirement	Recording interval/time ¹ (relative to time zero)	Data sample rate (per second)
Lateral acceleration	If recorded ²	0 to 250 ms	100
Longitudinal acceleration	If recorded	0 to 250 ms	100
Normal acceleration	If recorded	0 to 250 ms	100
Delta-V, lateral	If recorded	0 to 250 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	100
Maximum delta-V, lateral	If recorded	0 to 300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	N/A

TABLE II—DATA ELEMENTS REQUIRED FOR VEHICLES UNDER SPECIFIED MINIMUM CONDITIONS—
Continued

Data element name	Condition for requirement	Recording interval/time ¹ (relative to time zero)	Data sample rate (per second)
Time, maximum delta-V, lateral	If recorded	0 to 300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	N/A
Time, maximum delta-V, resultant	If recorded	0 to 300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	N/A
Engine RPM	If recorded	–5.0 to 0 sec	2
Vehicle roll angle	If recorded	–1.0 up to 5.0 sec ³	10
ABS activity (engaged, non-en- gaged).	If recorded	–5.0 to 0 sec	2
Stability control (on, off, engaged) ..	If recorded	–5.0 to 0 sec	2
Steering input	If recorded	–5.0 to 0 sec	2
Safety belt status, right front pas- senger (buckled, not buckled).	If recorded	–1.0 sec	N/A
Frontal air bag suppression switch status, right front passenger (on, off, or auto).	If recorded	–1.0 sec	N/A
Frontal air bag deployment, time to nth stage, driver ⁴ .	If equipped with a driver's frontal air bag with a multi-stage inflator.	Event	N/A
Frontal air bag deployment, time to nth stage, right front passenger ⁴ .	If equipped with a right front pas- senger's frontal air bag with a multi-stage inflator.	Event	N/A
Frontal air bag deployment, nth stage disposal, driver, Y/N (whether the nth stage deploy- ment was for occupant restraint or propellant disposal purposes).	If recorded	Event	N/A
Frontal air bag deployment, nth stage disposal, right front pas- senger, Y/N (whether the nth stage deployment was for occu- pant restraint or propellant dis- posal purposes).	If recorded	Event	N/A
Side air bag deployment, time to deploy, driver.	If recorded	Event	N/A
Side air bag deployment, time to deploy, right front passenger.	If recorded	Event	N/A
Side curtain/tube air bag deploy- ment, time to deploy, driver side.	If recorded	Event	N/A
Side curtain/tube air bag deploy- ment, time to deploy, right side.	If recorded	Event	N/A
Pretensioner deployment, time to fire, driver.	If recorded	Event	N/A
Pretensioner deployment, time to fire, right front passenger.	If recorded	Event	N/A
Seat track position switch, fore- most, status, driver.	If recorded	–1.0 sec	N/A
Seat track position switch, fore- most, right front passenger.	If recorded	–1.0 sec	N/A
Occupant size classification, driver	If recorded	–1.0 sec	N/A
Occupant size classification, right front passenger.	If recorded	–1.0 sec	N/A
Occupant position classification, driver.	If recorded	–1.0 sec	N/A
Occupant position classification, right front passenger.	If recorded	–1.0 sec	N/A

¹ Pre-crash data and crash data are asynchronous. The sample time accuracy requirement for pre-crash time is –0.1 to 1.0 sec (e.g., T = –1 would need to occur between –1.1 and 0 seconds).

² “If recorded” means if the data is recorded in non-volatile memory for the purpose of subsequent downloading.

³ “Vehicle roll angle” may be recorded in any time duration –1.0 to 5.0 seconds is suggested.

⁴ List this element n–1 times, once for each stage of a multi-stage air bag system.

[73 FR 2181, Jan. 14, 2008; 73 FR 8408, Feb. 13, 2008]

§ 563.8 Data format

(a) The data elements listed in Tables I and II, as applicable, must be reported in accordance with the range, accuracy, and resolution specified in Table III